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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,772	09/30/2003	Peter B. Key	MS1-1759US	7889
22971	7590	08/14/2007		
MICROSOFT CORPORATION ONE MICROSOFT WAY REDMOND, WA 98052-6399			EXAMINER LAZARO, DAVID R	
			ART UNIT 2155	PAPER NUMBER
			NOTIFICATION DATE 08/14/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/676,772	Applicant(s) KEY ET AL.	
	Examiner David Lazaro	Art Unit 2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/30/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-48 are pending in this office action.

Information Disclosure Statement

2. The IDS submitted 09/30/2003 has been considered by the examiner.

Drawings

3. The examiner accepts the drawings filed 09/30/2003.

Claim Objections

4. Claims 3-6, 19-22, and 35-38 are objected to because of the following informalities:
 5. Claims 3-6, 19-22 and 35-38 each contain the limitation "the adjusted window size". For clarity and consistency, "the adjusted window" should be "the adjusted receive window".
 6. Claims 5, 6, 21, 22, 37 and 38 each contain the limitation "the receive node". For clarity and consistency, "the receive node" should be "the second node" (if this is applicant's intended meaning for the receiving node).
 7. Claims 6, 22 and 38 appear to present duplicate subject matter of claims 5, 21 and 37 respectively.
 8. Appropriate correction is required.

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 17-32 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

11. Claim 17 states, "A computer program product encoding a computer program for executing on a computer system a computer process". While this states, "encoding a computer program", it is not clear if the computer program is necessarily being encoded on a computer readable medium. As disclosed in MPEP 2106.01, a computer program not encoded on a computer readable medium does not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. Therefore, claim 17 and its dependents, claims 18-32, are directed to non-statutory subject matter.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 13-15, 29-31 and 45-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2155

14. Claims 13-15, 29-31 and 45-47 each contain the limitation "testing the slope for the specified control interval against an estimate of a constant slope associated additional available network capacity in at least one previous control interval". It is not particularly clear as to what applicant intends to achieve through the "testing". It is not clear how this "testing" affects the "operation of generating" of claims 13-15 and 29-31 or the "adjusting module" of claims 45-47. Considering the "testing" in a general scope, how is the result of the testing applied to the invention? The claims do not distinctly describe how one would produce a result from the testing and how such result is of use to the invention. In other words, how does one test a given slope "against" an estimate slope in terms of producing a result that is applicable to the "operation of generating" of claims 13-15 and 29-31 or the "adjusting module" of claims 45-47?

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claims 1-10, 16-26, 32-42 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application Publication 2002/0080721 by Tobagi et al. (Tobagi).

Art Unit: 2155

17. With respect to claims 1, 17, and 33, Tobagi teaches a method (and corresponding computer program product and system) comprising:

evaluating network capacity available for communications between a first node and a second node based on transfer data received by the second node from the first node within a specified receive window during a specified control interval (Page 4 [0041], [0044], [0047], [0048]: network characteristics specific to a transfer of data are evaluated and can include, for example, transmission rates, frequency of data loss, network load, and other performance/feedback data); and

generating an adjusted receive window size for a subsequent control interval based on evaluated availability of the network capacity in the specified control interval (Page 4 [0044] and [0048]-[0049]: receive window size is adjusted by, for example, adjusting the receive buffer size based on the evaluation).

18. With respect to claims 2, 18 and 34, Tobagi teaches all the limitations of claims 1, 17 and 33 respectively, and further teaches communicating the adjusted receive window size to the first node to instruct the first node to transmit to the second node in accordance with the adjusted receive window size in the subsequent control interval (Page 3 [0037] and Page 4 [0043]: TCP mechanics transmit the adjusted window size thus manipulating the subsequent data transmissions).

19. With respect to claims 3, 19 and 35, Tobagi teaches all the limitations of claims 1, 17 and 33 respectively, and further teaches wherein the operation of generating comprises: adjusting a receive buffer size at the second node at an application level to

Art Unit: 2155

generate the adjusted window size in the subsequent control interval (Page 4 [0045] and [0049]: receive window controlled by changing the size of the receive buffer).

20. With respect to claims 4, 20 and 36, Tobagi teaches all the limitations of claims 1, 17 and 33 respectively, and further teaches wherein the operation of generating comprises: adjusting a receive buffer size at the second node to generate the adjusted window size in the subsequent control interval (Page 4 [0045] and [0049]: receive window controlled by changing the size of the receive buffer).

21. With respect to claims 5, 21 and 37, Tobagi teaches all the limitations of claims 1, 17 and 33 respectively, and further teaches wherein the operation of generating comprises: applying the adjusted window size to a transport level of the receive node in the subsequent control interval (Page 3 [0037] and Page 4 [0048]-[0049]: adjusting the receive buffer applies the adjusted window size through TCP mechanics).

22. With respect to claims 6, 22 and 38, Tobagi teaches all the limitations of claims 1, 17 and 33 respectively, and further teaches wherein the operation of generating comprises: applying the adjusted window size to a transport level of the receive node in the subsequent control interval (Page 3 [0037] and Page 4 [0048]-[0049]: adjusting the receive buffer applies the adjusted window size through TCP mechanics).

23. With respect to claims 7, 23 and 39, Tobagi teaches all the limitations of claims 1, 17 and 33 respectively, and further teaches communicating the adjusted receive window size to the first node to instruct the first node to adjust a send window size in accordance with the receive window and to transmit to the second node in accordance with the adjusted receive window size in the subsequent control interval (Page 3 [0037]

and Page 4 [0048]-[0049]: adjusting the receive buffer applies the adjusted window size through TCP mechanics which subsequently manipulates the sending of data based on the adjustment).

24. With respect to claims 8, 24 and 40, Tobagi teaches all the limitations of claims 1, 17 and 33 respectively, and further teaches wherein the operation of evaluating comprises: detecting a loss of the transfer data received by the second node during the specified control interval, relative to the specified receive window (Page 4 [0044] and [0048]: monitors data loss).

25. With respect to claims 9, 25 and 41, Tobagi teaches all the limitations of claims 1, 17 and 33 respectively, and further teaches wherein the operation of evaluating comprises: measuring an amount of the transfer data received by the second node during the specified control interval (Page 4 [0044] and [0048] measures performance/feedback data including actuation transmission rates).

26. With respect to claims 10, 26 and 42, Tobagi teaches all the limitations of claims 1, 17 and 33 respectively, and further teaches wherein the operation of generating comprises: determining whether to increase or decrease the receive window to obtain the adjusted receive window size; and determining an amount by which to adjust the receive window to obtain the adjusted receive window size (Page 4 [0048], [0049]).

27. With respect to claims 16, 32 and 48, Tobagi teaches all the limitations of claims 1, 17 and 33 respectively, and further teaches wherein the operations of evaluating and generating are performed at the application level (Page 3 [0033]).

Claim Rejections - 35 USC § 103

28. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

29. Claims 11, 12, 27, 28, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tobagi in view of U.S. Patent 6,597,660 by Rueda et al. (Rueda).

30. With respect to claims 11, 27 and 43, Tobagi teaches all the limitations of claims 1, 17 and 33 respectively. Tobagi further teaches a variety of parameters/feedback information may be used in determining the amount of adjustment for a receive window (In Tobagi: Page 4 [0041], [0044], and [0048]). As such, it is clear that there are a number of techniques that could be utilized for determining the amount of adjustment for a receive window.

Tobagi does not explicitly disclose using a binary search for determining an amount by which to adjust the receive window. Rueda teaches the use of a binary search is one particular technique to determine operational parameters in network traffic analysis is well known in the art (In Rueda: Col. 17 lines 66 - Col. 18 line 10).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to try a binary search in an attempt to determine a proper amount to adjust the receive window based on various operational parameters, as a person with ordinary skill has good reason to pursue known options within his or her technical grasp. As the binary search as claimed has properties predicted in the prior art, it would have

Art Unit: 2155

been obvious to use a binary search for determining an amount by which to adjust the receive window.

31. With respect to claims 12, 28 and 44, Tobagi teaches all the limitations of claims 1, 27 and 33 respectively. Tobagi further teaches a variety of parameters/feedback information may be used in determining the amount of adjustment for a receive window (In Tobagi: Page 4 [0041], [0044], and [0048]). As such, it is clear that there are a number of techniques that could be utilized for determining the amount of adjustment for a receive window.

Tobagi does not explicitly disclose using a stochastic approximation for determining an amount by which to adjust the receive window. Rudea teaches the use of stochastic approximations for network traffic analysis is well known in the art (Col. 3 line 64 - Col. 4 line 5).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to try using a stochastic approximation in an attempt to determine a proper amount to adjust the receive window based on various operational parameters, as a person with ordinary skill has good reason to pursue known options within his or her technical grasp. Since the stochastic approximation as claimed has properties predicted in the prior art, it would have been obvious to use a stochastic approximation for determining an amount by which to adjust the receive window.

Conclusion

32. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

33. U.S. Patent Application Publication 2002/0122385 by Banerjee. September 5, 2002. Discloses adjusting the receive window length according to a capacity of a data connection.

34. U.S. Patent Application Publication 2002/0112057 by Srinivas et al. August 15, 2002. Discloses automatic tuning of the TCP receive window based on attributes of a network card.

35. U.S. Patent 6,205,120 by Packer et al. March 20, 2001. Discloses optimally setting the receiver window size to minimize queuing in a packet network.

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lazaro whose telephone number is 571-272-3986. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 2155

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David Lazaro
August 3, 2007